1,155,786

PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

Improvements in or relating to a Hot-Metal Adhesive Composition

We, THE BORDEN CHEMICAL COMPANY (UK) LIMITED, a British Company of North Baddesley, Southampton, Hampshire, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a hot-melt adhesive composition, that is an adhesive composition which is fluid at elevated temperatures but which solidifies to a tough solid at lower temperatures.

In accordance with the present invention there is provided a hot-melt composition comprising an ethylene/vinyl acetate copolymer containing on average between 17 and 29% by weight of vinyl acetate units, a fully hydrogenated or partially hydrogenated rosin ester, a wax and a finely divided filler in an amount of from 40% to 120% by weight of the combined weight of the other ingredients. The wax is preferably a paraffin wax or a micro-crystalline wax. A preferred filler is powdered whiting (chalk).

The hot-melt composition of the present invention is particularly suitable for application as a backing for carpets. More particularly the composition may be used in the process for backing carpets disclosed in our Application No. 34487/66.

In the specification of Application No. 34487/66 Serial No. 1,155,785 there is described and claimed a process for backing carpets which comprises applying to the back face of a carpet web a molten composition comprising an ethylene/vinyl acetate copolymer containing on average between 17% and 29% by weight of vinyl acetate-units, fully hydrogenated or partially hydrogenated rosin ester, a wax and, optionally, a finely divided filler.

In applying the hot-melt adhesive composition of the present invention to a carpet, any convenient method may be used. As described in Application No. 34487/66, Serial No. 1,155,785 we prefer to employ a reverse roll coater, i.e. one in which the adhesive is applied by a roller which rotates so that the surface which contacts the carpet is moving in the opposite direction to that of the carpet; the application of the adhesive could additionally be controlled by means of a doctor blade operating either on the applicator roller or on the coated carpet itself. Whilst it is not necessary to heat the roller, clearly it is undesirable that it should be cooled. However, other coating means, and particularly a curtain coater, in which the adhesive is extruded in a thin curtain on to a moving carpet web, may be used. Desirably, the apparatus should include a reactivating stage, for example, a heated counter-rotating roller so that the surface is moving oppositely to the direction of travel of the web and in contact with the applied coating, in order to re-melt the coating and increase penetration.

The applied film, the degree of penetration of which may additionally be controlled by controlling the temperature and composition of the adhesive, solidfies rapidly and high production speeds may be attained in consequence.

While the term 'carpet' has been used for convenience herein, it is to be understood that the compositions of the invention may also be used to provide backing coat-

[*Price 4s. 6d.*]

Price 5s. 0d.

ings upon rugs, mats and other woven textile articles.

The following Examples, in which all parts are by weight, illustrate the invention:—

EXAMPLE 1

A hot-melt composition was prepared by fusing together with stirring:—

	parts
Elvax 350 (Elvax is a Registered Trade Mark of DuPont Co. (UK) Ltd. Elvax 350 is an ethylene/vinyl acetate copolymer having a 25—27% vinyl acetate content)	20
Foral 85 (Foral is a Registered Trade Mark of Hercules Powder Company Ltd. Foral 85 is a glyceryl ester of a fully hydrogenated wood rosin)	20
Paraffin wax (melting range 60—63°C.)	10
Powdered whiting (chalk)	50
Butylhydroxylated toluene antioxidant)	0.1

The above composition, which is molten at a temperature of 180°C., may be used for backing a carpet according to the procedure described in Application No. 34487/66.

EXAMPLE 2

A hot-melt composition was prepared by stirring until homogeneous a molten composition comprising:—

	parts
Elvax 350	20
Staybelite Ester 10 (Staybelite Ester is a Registered Trade Mark of Hercules Powder Co. Ltd Staybelite Ester 10 is a glyceryl ester of a partially hydrogenated wood rosin)	15
Micro-crystalline wax	15
Powdered whiting (chalk)	50
Polygard (antioxidant) (Polygard is an alkylated aryl phosphite supplied by United States Rubber Co.)	0.1

This composition may also be used for coating a carpet as described in Application No. 34487/66.

WHAT WE CLAIM IS:—

1. A hot-melt composition comprising an ethylene/vinyl acetate copolymer containing on average between 17 and 29% by weight of vinyl acetate units, a fully hydrogenated or partially hydrogenated rosin ester, a wax and a finely divided filler in an amount of from 40% to 120% by weight of the combined weight of the other ingredients.

2. A composition according to claim 1, wherein the wax is a paraffin wax or a microcrystalline wax.

3. A composition according to claim 1 or 2, in which the filler is powdered whiting.

4. Hot-melt compositions comprising an ethylene/vinyl acetate copolymer substantially as hereinbefore described with reference to the Examples.

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